REMARKS

Claims 1-10 are pending in the present application. Claims 1, 4-8 and 10 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Hellmuth et al., U.S. Patent No. 5,795,295 in view of Kempe, U.S. Patent No. 6,151,127. Claims 2, 3 and 9 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Hellmuth et al. in view of Kempe, as applied to claims 1 and 8, and further in view of Kitagawa et al., U.S. Patent No. 6,297,904 B1.

Claims 1, 5, 7 and 10 have been amended.

Applicants gratefully acknowledge the Examiner's indication that the drawing changes submitted by applicants in a previous paper have been properly entered by the Examiner.

Amendments to the claims

Independent claims 1 and 7 have been amended to recite "a lens disposed before [the objective] and configured to guide the scanning beam path parallel to at least one of the first and second observation beam paths between the lens and the objective." Support for this amendment may be found, for example, at page 5, lines 5-7 of the first paragraph, and Figs. 1 and 2.

Dependent claims 5 and 10 have been amended for agreement with amended claims 1 and 7.

It is respectfully submitted that no new matter has been added.

Rejection under 35 U.S.C. §103 (a) to claims 1, 4-8, and 10

Claims 1, 4-8 and 10 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Hellmuth et al., U.S. Patent No. 5,795,295 in view of Kempe, U.S. Patent No. 6,151,127.

Hellmuth et al. describes an OCT-assisted surgical microscope having a neurosurgical

microscope and an OCT-scanner 420. See Col. 3, line 65 through Col. 4, line 5 and Fig. 1. As noted by the Examiner, Hellmuth does not disclose a confocal scanning device.

Kempe describes a confocal microscopy system scanning device 26 wherein an illuminating beam is modulated and a return beam from a specimen is demodulated. See Abstract and Fig. 1.

Independent claims 1 and 7 of the present application, as amended, recite an arrangement for visual and quantitative three-dimensional examination of specimens, including "a lens disposed before [the objective] and configured to guide the scanning beam path parallel to at least one of the first and second observation beam paths between the lens and the objective." It is respectfully submitted that neither Hellmuth et al. nor Kempe teach or suggest these features of claims 1 and 7. In contrast, Hellmuth et al. describes an OCT (optical coherence tomography transverse) scanner 420 including beamcombiner 120 which directs OCT beam 430 toward objective lens 110. See Col. 4, lines 9-16 and Fig. 1. OCT scanner 420 includes lens 470 or lens 490 that directs the scanning beam perpendicular to the observation beam paths. See Figs. 1 and 2. The system of Kempe does not include a stereomicroscope, nor first and second observation beam paths.

Because neither of Hellmuth et al. or Kempe teach the above-recited features of claims 1 and 7, it is respectfully submitted that were these references to be combined (and it is respectfully submitted that it would not be proper to do so, as discussed below), such a combination would not provide all the features of each of claims 1 and 7. A combination of these two references could not provide a device in which the focus of the scanning beam can be easily changed in tandem with a change in magnification and focus of the stereomicroscope. In the embodiment shown in Fig. 1 of the present application, by adjusting lens 16 in tandem with adjacent lenses 14, the scanning beam and the observation beams can be simultaneously focused. In the embodiment shown in Fig. 2 of the present application, in which the scanning beam is coupled into one of the observation beams, the scanning beam automatically stays in focus with the observation beam. For appropriate focusing of OCT radiation 430, Hellmuth et al. requires an extra lens system (lens 470 or scanning lens 490) that is part of the OCT transverse scanner 420. See Col. 5, lines 14-54 and Figs. 2 and 3.

Moreover, applicants respectfully submit that Hellmuth et al. and Kempe are not properly combinable, and that Hellmuth et al. teaches away from the use of a confocal scanner. Hellmuth et al. describes a surgical microscope for locating blood vessels and nerves in a patient's brain. Applicants respectfully submit that a confocal scanner, in place of an OCT scanner, would be of little use for locating blood vessels and nerves. The Examiner has stated that motivation to combine Hellmuth et al. and Kempe may be found in "the knowledge generally available to one of skill in the art that confocal scanning provides better image resolution and contrast discrimination." See Office Action, lines 15-16. It is respectfully submitted that Hellmuth et al. in fact teaches away from using the confocal scanning device of Kempe. A goal of Hellmuth et al. is to "locate blood vessels and nerves in a patient's brain with submillimeter resolution." See Col. 2, lines 55-58. To achieve this goal, Hellmuth et al. employs optical coherence tomography scanning to provide, e.g., images of cross sections of brain tissue at various depths to help a surgeon locate nerves and blood vessels concealed by brain tissue or locate a brain tumor. See Col. 11, lines 15-20 and 49-51. It is respectfully submitted that using the confocal scanning device of Kempe for scanning in the device of Hellmuth et al. would not provide such cross-sectional images of brain tissue. As is generally known to those of skill in the art, confocal scanning provides images of surface structure at respective focal planes. The images may be combined to produce a three-dimensional image of the surface structure of a specimen. Thus, the confocal scanner of Kempe could not provide the cross-sectional images, and combining Kempe with Hellmuth et al. could not achieve the goal stated in Hellmuth et al. In summary, rather than there being any motivation to combine these two references, there is a teaching away from such a combination.

For at least the reasons stated above, withdrawal of the rejection of independent claims 1 and 7, as well as dependent claims 4-6, 8, and 10, under 35 U.S.C. §103 (a) based on Hellmuth et al. in view of Kempe is hereby respectfully requested.

Rejection under 35 U.S.C. §103 (a) to claims 2, 3 and 9

Claims 2, 3 and 9 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Hellmuth et al. in view of Kempe, as applied to claims 1 and 8, and further in view of Kitagawa et al., U.S. Patent No. 6,297,904 B1.

Kitagawa et al. describes an inverted confocal microscope. See Abstract.

Claims 2 and 3 properly depend from, and therefore include all the limitations of, independent claim 1, and claim 9 properly depends from, and therefore includes all the limitations of, independent claim 7. As discussed above, claims 1 and 7 are patentable over Hellmuth et al. and Kempe. Because Kitagawa et al. does not provide the above-discussed missing features of claims 1 and 7, even if Kitagawa et al. could be properly combined with Hellmuth et al. and Kempe (and it is respectfully submitted it could not) dependent claims 2, 3 and 9 would be patentable over such a combination.

Withdrawal of the rejection of claims 2, 3 and 9 under 35 U.S.C. §103 (a) based on Hellmuth et al. in view of Kempe, as applied to claims 1 and 8, and further in view of Kitagawa et al., is hereby respectfully requested.

CONCLUSION

It is respectfully submitted that the application is now in condition for allowance.

Respectfully submitted,

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